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PATENT

UNITED STATES PATENT APPLICATION

of

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for

ENDODONTIC INSTRUMENT

## BACKGROUND OF THE INVENTION

### Field of the Invention

**[0001]** This invention relates to endodontic tools, especially a holder for an endodontic file and also to a specially shaped endodontic file for optional use with such holder.

### Description of the Related Art

**[0002]** Numerous patents have been granted for holding an endodontic file. These include United States patent nos. 3,247,594; 4,251,214; 4,330,278; 4,582,489; 4,940,410; 4,992,048; 5,775,903; 5,775,904; 5,921,775; 6,174,165; 6,213,771; 6,231,340; and 6,575,747.

**[0003]** The device of patent no. 3,247,594 describes what has become a traditional cap for an endodontic file.

**[0004]** And patent no. 6,231,340 describes the closest holder to the present invention. The device of that patent has an aperture near an end of an elongated handle. The aperture is transverse to the longitudinal handle. The shaft of a dental tool is placed into the transvers aperture, and a nut is screwed from the end of the handle against such shaft.

**[0005]** United States patent nos. 4,992,048 and 5,775,904 show endodontic files that initially move away from the centerline of the file and then curve back parallel to or toward such centerline; but the files of these patents do not cross such centerline. Although the filling device of United States patent no. 1,818,627 does cross the centerline, it is not a file. It is used for filling a root canal, not filing such a canal to remove material—the opposite of filling.

## BRIEF SUMMARY OF THE INVENTION

**[0006]** The present Endodontic Instrument comprises a handle to which a cap is threadably attached. The cap has a channel extending through a first end of the cap, and a second end of the cap is farther from the handle and contains an aperture through which an endodontic file can project. The aperture has a diameter selected to be larger than the diameter of the endodontic file but small than the diameter of the plastic cap attached to the endodontic file.

**[0007]** Optionally, the Endodontic Instrument includes an endodontic file that initially moves away from the centerline of the endodontic file and then curves back toward and crosses the centerline. In order to accommodate such a bent endodontic file, the aperture is extended to the

side of the cap and, on such side, enlarged to dimensions sufficient to permit the introduction of the plastic cap.

#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

**[0008]** FIG. 1 portrays the holder of the Endodontic Instrument.

**[0009]** FIG. 2 illustrates the optional bent endodontic file.

#### DETAILED DESCRIPTION OF THE INVENTION

**[0010]** An endodontic file is a small, tapered, fluted wire that is used in preparing and cleaning the root canal of a tooth.

**[0011]** Although the prior art includes the holders discussed above, a dentist usually simply holds with the thumb and the index finger a plastic cap that is attached to the endodontic file.

**[0012]** As illustrated in FIG. 1, the present holder has a handle **1** and a cap **2**.

**[0013]** The handle **1** employs an elongated base **3** having a threaded projection **4** at a first end **5**.

**[0014]** Preferably, the maximum outer diameter of the cap **2** is substantially the same as the maximum outer diameter of the elongated base **3**.

**[0015]** The cap **2** contains a channel **6** extending through a first end **7** of the cap. The first portion **8** of the channel **6** is threaded for mating with the projection **4** of the elongated base **3**. The second end **9** of the cap **2** contains an aperture **10** through which an endodontic file **11** can project.

**[0016]** In use, an endodontic file **11** is placed so that it extends through the aperture **10** with the plastic cap **12** that is attached to the endodontic file **11** (at an end **16** opposite to the tip **14**) being in the channel **6**. (The diameter of the aperture **10** is selected to be larger than the diameter of the endodontic file **11** but smaller than the diameter of the plastic cap **12**.) The cap **2** is then screwed closer to the first end **5** of the elongated base **3** until the plastic cap **12** is securely retained in the channel **6** between the second end **9** of the cap **2** and the projection **4**.

**[0017]** In order to facilitate the work of an endodontist, an option to the present invention is, as portrayed in FIG. 2, an endodontic file **11** that initially moves away from the centerline **13** of

the endodontic file **11** in a first direction shown by the arrow **A** and then curves back toward and crosses the centerline **13** as the tip **14** of the endodontic file **11** is approached.

**[0018]** To accommodate such a bent endodontic file **11**, the aperture **10** is extended to the side **15** of the cap **2** and, on such side **15**, enlarged to dimensions sufficient to permit the introduction into the channel **6** of the plastic cap **12**.

**[0019]** The Holder aids the dentist by changing the thumb-and-finger grip to a pencil-type grip, which is more suitable for manipulating the endodontic file **11**. And the bent endodontic file **11** permits the dentist to place his or her hand in a more convenient location.

**[0020]** As used herein, the term “substantially” indicates that one skilled in the art would consider the value modified by such terms to be within acceptable limits for the stated value. Also as used herein the term “preferable” or “preferably” means that a specified element or technique is more acceptable than another but not that such specified element or technique is a necessity.